Amorphous silicon carbonitride (SiCN) ceramics were pyrolyzed from polysilyethylenediamine (PSEDA) derivation, followed by etching with 0.1 mol L⁻¹ NaOH solution. Morphology and structure of the modified SiCN material were characterized using SEM, TEM and XRD technique. TEM images demonstrated that some holes, about 220 nm in diameter, emerged on the surface of the as-prepared material. Meanwhile, the modified SiCN also showed superior electrochemical properties as an anode for lithium ion batteries. Charge-discharge measurements indicated that the modified SiCN anode possessed a high initial specific discharge capacity of 740.3 mAh g⁻¹ and stayed a reversible capacity of 295.8 mAh g⁻¹ after 40 cycles at a current density of 40 mA g⁻¹. Both of the abovementioned values are higher than that of pure polymer-derived SiCN under the same conditions. Additionally, the modified SiCN anode exhibited much better rate performance than pure SiCN. It was deduced that the formation of nano-holes on material surface in etching process not only offered new channels for the intercalation of Li⁺ but also alleviated the volume effect, resulting in the improved electrochemical performance of SiCN anode.